

REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

Status of Claims

Claims **1-28** are now pending.

Claims **1-22** have been rejected.

Claims **1** and **10** have been amended. Applicants respectfully assert that the amendments to the claims add no new matter.

Claim **11** has been canceled without prejudice or disclaimer. In making this cancellation without prejudice, Applicants reserve all rights in these claims to file divisional and/or continuation patent applications.

New claims **23-28** have been added in order to further define what the Applicants consider to be the invention. Applicants respectfully assert that no new matter has been added.

Support for New and Amended Claims

Support for the new and amended claims may be found throughout the specification, including at the following portions of the application (as published):

[0040] In order for controller 42 to be able to determine the correct light for being displayed at each portion of viewing screen 40, controller 42 optionally receives data from a data input 45, which may optionally be digital or analog. Most preferably, controller 42 also receives instructions and/or commands from a converter 46, which is

functionally connected between data input 45 and controller 42. Converter 46 converts the data from data input 45 into a format suitable for controller 42, and also includes any necessary instructions and/or commands for enabling controller 42 to be able to understand the data. Converter 46 may be implemented in software, hardware, or any suitable combination of software and/or hardware. Optionally, converter 46 may also convert the data from an analog signal to digital data, such that controller 42 is only required to receive digital data. Converter 46 may be able to determine the appropriate combination of light of at least three different primary colors in order to accurately represent the color image data with displayed colors which match or substantially match the colors of a certain printed material, such that the appearance of the displayed image matches or substantially matches the appearance of a certain set of inks as printed onto the paper of the printed material.

[0041] In alternate embodiments, converter 46 is able to determine the appropriate combination of light of another number of primary colors in order to accurately represent a set of elementary colors (e.g., cyan, magenta, yellow, red, green, blue) and the "white" color of the substrate. For example, three or four primaries may be combined to reproduce these seven colors. In other embodiments, a different number of elementary colors may be reproduced, for example, if proofing is desired for an ink system that produces a different number of elementary colors. The match may be based on spectral resemblance, in the sense that the primary filters may be chosen so that the reflection spectra of the elementary color inks, their overlaps, and the substrate, may be reproduced. For example, three or four primaries may be combined to reproduce the seven spectra of the inks, their overlaps and the substrate.

CLAIM REJECTIONS

35 U.S.C. § 103 Rejections

In the final Office action, the Examiner rejected claims 1-4, 6-13, 15, 16, and 18-22 under 35 U.S.C. § 103(a), as being unpatentable over Karakawa (US Patent No. 6,304,237) in view of Lind (US Patent No. 6,069,601).

Karakawa discloses a laser system for producing each of three monochromatic colors (red, green, and blue) for a transmissive LCD display. According to the Abstract, Karakawa discloses:

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A monochromatic red (R), green (G), blue (B) pulsed laser light source (FIG. 2) for use in a full color video/image display system particularly an LCD display system (FIG. 3), the light source generating R, G, B laser beams with minimum speckle noise, and having digital color space conversion incorporated within. (emphasis added).

However, as the Examiner conceded in the final Office action, Karakawa fails to teach either (a) a proofed image or (b) chromaticities selected to define a viewed color gamut that covers the perceived color gamut of the set of inks when printed on the substrate.

In order to overcome this deficiency, the Examiner cited the Lind reference. Lind teaches soft proofing an image to be reproduced using a set of selected print colorants, wherein the display appearance is substantially spectrally matched to the set of printing colorants. According to the summary of the invention, Lind discloses:

a method of forming a display panel for soft proofing an image to be reproduced using a set of selected printing colorants includes the steps of providing a substrate, forming a first display layer on the substrate, forming a second display layer on the first display layer and forming a third display layer on the second display layer. Each of the forming steps comprises the steps of depositing a layer of liquid pigmented materials. . . The display appearance is substantially spectrally matched to the set of printing colorants. (Lind col. 2, lines 44-55, emphasis added)

The Examiner therefore rejected the claims of the present application based on the assertion that it would have been obvious to combine teachings from the Karakawa and Lind references.

This rejection, however, is improper. The Lind reference describes a system in which a white light source is filtered by a set of three colored layers of cyan, magenta and yellow placed one on top of the other in alignment. The intensity of light passing through each layer may be controlled separately to determine the density of the filtering color. The colors of the filters are chosen to fit spectrally those of the printing colorants.

The device described by Lind is similar in the process of color printing, in which white light reflected from the paper is filtered by the ink layers and the overlap of inks. Therefore, the Lind apparatus is a subtractive color display. This is in stark contrast to the

additive RGB display of Karakawa. It would not have been obvious to one of ordinary skill in the art to combine the teachings of the references.

The Examiner rightly stated that Lind does not teach that the defined viewed color gamut entirely covers a perceived color gamut of the set of inks when printed on the substrate. Specifically, the Examiner stated that the purpose of the Lind apparatus was to select printing colorants (i.e., view color gamut), wherein the display appearance is substantially spectrally matched to a set of printing colorants (i.e., perceived color gamut).

However, if one were to take the set of monochromatic laser lights from Karakawa and filter them through the layered apparatus described by Lind, the spectral characteristics of the light would not change, because a monochromatic light filtered by any filter would still be monochromatic of the same wavelength (perhaps with the intensity reduced). Thus, including the teaching of Karakawa with the Lind apparatus would not operate to produce a device capable of changing a display's color gamut.

In particular, the ability of the Lind display to create a spectral match relies on the use of spectrally wide band white light. However, Karakawa uses monochromatic or spectrally narrow lasers. It is clear therefore, that combining Karakawa's monochromatic RGB lasers with Lind's color filters would not result in a spectral color match. Therefore, the combination would produce an inoperable or unacceptably inferior system.

In addition to the above, claim 1 recites a "converter to receive said proofed image in a print color format and to convert said proofed image from said print color format to a display color format" and "a controller to receive said proofed image in said display color format." Similarly, claim 10 recites "converting said proofed image from said print color format to a display color format corresponding to said at least three colors." Karakawa and Lind fail to teach the converter and converting step as recited in claims 1 and 10, respectively.

In the final Office action, the Examiner rejected claim 5 under 35 U.S.C. § 103(a), as being unpatentable over Karakawa in view of Lind and further in view of Wada (US Patent

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No. 6,972,736). The Wada reference does not cure the deficiencies of the Karakawa and Lind references discussed with respect to claims 1. Accordingly, claim 5 is allowable at least for depending from an allowable base claim.

In the final Office action, the Examiner rejected claims 14 and 17 under 35 U.S.C. § 103(a), as being unpatentable over Karakawa in view of Lind and further in view of Baba (US Patent Application Publication No. 2002/0122019). The Baba reference does not cure the deficiencies of the Karakawa and Lind references discussed with respect to claim 10. Accordingly, claims 14 and 17 are allowable at least for depending from an allowable base claims.

In addition to the above, Applicants have added claims 23-28, which are also allowable over the cited Karakawa, Lind, Wada, and Baba references.

Claims 23 and 26 recite that the print color format is an analog format.

Claims 24 and 27 recite that the display color format is a digital format, and that the proofed image is converted from the analog print color format to the digital display color format.

Claims 25 and 28 recite that a combination of light of the at least three different primary colors is determined, thereby to accurately represent the proofed image using said at least three light source colors.

The cited references do not disclose or render obvious the additional recitations of claims 23-28. Accordingly, the claims are allowable over the art of record.

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Conclusion

In view of the foregoing amendments and remarks, Applicants assert that the pending claims are allowable. Their favorable reconsideration and allowance is respectfully requested.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Please charge any fees associated with this paper to deposit account No. 50-3355.

Respectfully submitted,

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Dated: May 14, 2010

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